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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------|-------------|----------------------|----------------------|------------------|
| 10/039,344 | 12/31/2001 | Satoshi Kasai | 01642/LH | 1547 |
| 1933 | 7590 | 01/24/2005 | EXAMINER | |
| FRISHAUF, HOLTZ, GOODMAN & CHICK, PC | | | NAKHJAVAN, SHERVIN K | |
| 767 THIRD AVENUE | | | ART UNIT | |
| 25TH FLOOR | | | PAPER NUMBER | |
| NEW YORK, NY 10017-2023 | | | 2621 | |

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/039,344 | KASAI, SATOSHI | |
| | Examiner | Art Unit | |
| | Shervin Nakhjavan | 2621 | |

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 13 and 18 is/are rejected.
- 7) ☒ Claim(s) 10, 12 and 14-17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2-18-04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 8, 13-15 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, lines 3-4, the phrase "said parameter adjusted" is open ended and ambiguous because, it is unclear what parameter adjusted object or not is being referred to. Regarding claim 8, the phrase "said gradation-adjusting section" seems to be referring to a previously cited gradation adjusting section which does not appear in the claim. Therefore, these phrases are vague and confusing because, it is unclear what feature or element is further limited by this language. Claims 13-15 and 17 variously depend from an indefinite base claim and are thus themselves indefinite.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1, 3, 5 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Schuller et al. (US 4,941,164).

Regarding claim 1, Schuller teaches an apparatus for processing a radiation image (Column 6, Line 59 through Column 7, Line 5, wherein image processing apparatus is discussed which incorporates a computer for performing the mentioned softwares as follows), comprising: a pixel-value analyzing section to analyze a pixel-value within a step pattern of a wedge area in which a density varies step by step, wherein said radiation image includes said wedge area (Column 10, Lines 41-62, wherein pixel analyzing is performed on step wedge image which is part of the radiographic image of figure 5, the analyzing step is part of the change detection step in the above image processing); and a suspicious region analyzing section to detect a candidate of a suspicious region by using information outputted from said pixel-value analyzing section (Column 10, Line 63 through Column 11, Line 53, wherein upon pixel analysis of the radiographic image along with its reference density values collected from the wedge image, a past image of figure 5a is subtracted from a present image of figure 5b to produce the suspect areas 54 and 56 of image of figure 5c, all of which is part of the image processing step of the computer above);

Schuller teaches limitation of claim 3, said suspicious region analyzing section comprises: a parameter-adjusting section to adjust a parameter for detecting said candidate of said suspicious region on the basis of information, pertaining to said pixel-value, outputted by said pixel-value analyzing section (Column 10, Lines 51-59, wherein

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the mean difference of the significant different areas are adjusted as parameters into density of aluminum);

Schuller teaches limitation of claim 5, apparatus further comprising a second suspicious region detecting section to detect said candidate of said suspicious region by said parameter adjusted by said parameter adjusting section (Column 10, Lines 59-62, wherein a second part of suspicious detecting section is to translate aluminum-density value to a value of hydroxyapatite-density);

Schuller teaches limitation of claim 9, apparatus further comprising: a step position-detecting device for detecting step position of said wedge area on the basis of a feature of a change amount of pixel-values; wherein a region of interest is determined on the basis of said position detected by said step position-detecting device (Column 10, Lines 41-47, where upon detecting the position of the mouse pointer on each step, the computer detects based on the values of the NxN unit square pixels centered at the point selected and changes the step value to an average intensity value, wherein said step of averaging is a precursor to further detecting of the suspicious areas which follows).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 4, 6-8, 11, 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuller et al. in view of Funahashi et al. (US 4,999,497).

Schuller teaches number of limitations of the claims however Schuller fails to specifically teach gradation adjusting of the radiation image of claim 2, detection section of claim 4, image outputting section of claims 6, 7, 11 and suspicious region analyzing region section of claim 18. Funahashi teaches limitation of claim 2, said suspicious region analyzing section comprises: a gradation-adjusting section to adjust a gradation of said radiation image on the basis of information, pertaining to said pixel-values, outputted by said pixel-value analyzing section (Column 16, Lines 14-32, wherein gradation values are adjusted by image processing on the radiation image when there is no preliminary read-out step based on past information of the past radiation image Column 16, Lines 51-58);

Funahashi teaches limitation of claim 4, apparatus further comprising: a first suspicious region detecting section to detect said candidate of said suspicious region on the basis of said radiation image, said gradation of which is adjusted by said gradation-adjusting section (Column 15, Lines 29-38, wherein image 7a is the gradient adjusted radiation image as further discussed prior to reproduction of the image in Column 15, Lines 9-17);

Funahashi teaches limitation of claim 6, apparatus further comprising an image-outputting section to output said radiation image, said gradation of which is adjusted by

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said gradation adjusting section (Column 12, Lines 25-29, wherein the reproduced gradient adjusted image is outputted from reproducing section 30);

Funahashi teaches limitation of claim 7, an outputting section to output both a result of detecting said suspicious region in said first suspicious region detecting section (see claim 1, suspicious region detecting section) and said radiation image adjusted by said gradation-adjusting section (Column 12, Lines 25-29, wherein the reproduced gradient adjusted image is outputted from reproducing section 30);

Funahashi teaches limitation of claim 8, an output section to output both a result of detecting said suspicious region in said second suspicious region and said radiation image adjusted by said gradation adjusting section (Column 16, Lines 51-58, a second suspicious region detecting section adjusts the sensitivity of the radiation image while the gradation-adjusting is the first suspicious region detecting section in the outputting section 30 of figure 1 for outputting the reproduced radiation image);

Funahashi teaches limitation of claim 11, apparatus further comprising: an image-outputting section to output said radiation image, said gradation of which is adjusted by said gradation adjusting section (Column 12, Lines 25-29, wherein the reproduced gradient adjusted image is outputted from reproducing section 30);

Funahashi teaches limitation of claim 13, a gradation-adjusting section; wherein said outputting section outputs said radiation image, said gradation of which is adjusted by said gradation adjusting section (Column 12, Lines 25-29, wherein the reproduced gradient adjusted image is outputted from reproducing section 30);

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Funahashi teaches limitation of claim 18, said suspicious region analyzing section comprises: a parameter-adjusting section to adjust a parameter for detecting said candidate of said suspicious region on the basis of information, pertaining to said pixel-value, outputted by said pixel-value analyzing section (see claim 1, pixel analyzing and suspicious region detecting section); and a second suspicious region detecting section to detect said candidate of said suspicious region by using said parameter adjusted by said parameter-adjusting section (Column 16, Lines 51-58, wherein image sensitivity is adjusted also based on past radiation image as second suspicious reading section wherein the step inherently adjusts some parameters of the radiation image in addition to gradation adjustment).

It would have been obvious to an ordinary skilled person in the art to incorporate Funahashi's image gradation and sensitivity parameter adjusting utility with Schull's system because, reading radiation images at different times based on i.e. gain or scale factor changes the gradation and sensitivity of the detected images which is a problem in detecting suspicious regions based on analysis of present and past radiation images of an object.

Allowable Subject Matter

7. Claims 10, 12 and 14-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record specifically

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Sculler et al. fails to teach step position detecting device finding an area which said pixel value varies step by step, by obtaining profiles at a plurality of positions in plural directions to recognize said step position of claim 10, gradation adjusting of the image based on degree of involution of mammary glands of claims 12 and 15, step position detecting based on a feature of a change amount of pixel values of claim 14, outputting at least one of the items of the selection of claim 16 onto a partial area of said radiation image, on which a subject image does not overlap of claim 16, combined with other features and elements of the claims.

Other prior art cited

8. Prior art of record cited and not relied upon is considered pertinent to applicant's disclosure.

The US Patent 6,510,197; US Patent 6,320,931; US Patent 5,600,574; US RE35423; US Patent 5,506,880 and US Patent 4,837,686 are related to applicant's invention as claimed.

Contact information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shervin Nakhjavan whose telephone number is (703) 306-5916. The examiner can normally be reached on Monday through Friday from 8:00 am to 5:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached at (703) 305-4706.

Any response to this action should be mailed to:
Assistant Commissioner for Patents
Washington, DC 20231

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Or faxed to:

(703) 872-9306 for *formal* communications, please mark "EXPEDITED PROCEDURE"

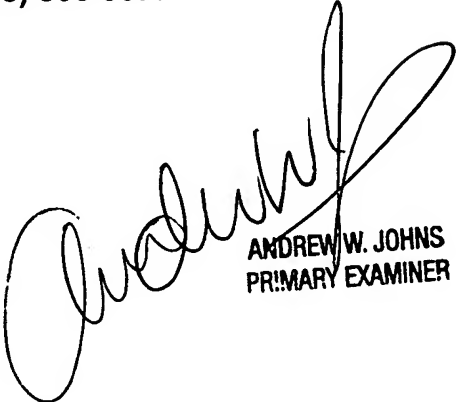
or:

for *informal* or *draft* communications; please label "PROPOSED" or "DRAFT".

Hand delivered responses should be brought to Crystal Park 2, 2121 Crystal drive, Arlington, VA, sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Tech center 2700 customer service office (703) 306-0377.

Shervin Nakhjavan S.N
Patent Examiner
Group Art Unit 2621
January 14, 2005.



ANDREW W. JOHNS
PRIMARY EXAMINER